

Chez Pierre

Presents ...

Wednesday, April 20, 2022

12:00 pm

Duboc Room - 4-331



Special Chez Pierre Seminar

Yaroslav Tserkovnyak – UCLA

“Integrating quantum impurities with dissipative media: New probes and utilities of quantum materials”.

Optically controlled and detected quantum color centers, such as nitrogen-vacancy (NV) impurities in diamond, are becoming a versatile tool to sensor diverse aspects of condensed matter dynamics. I will discuss recent progress in using NV centers to probe nonequilibrium states of pumped magnetic systems, spin transport, metamagnetic transitions, and metastable spin textures: all based on detecting emitted magnetic field noise.

Conventional ferro- and antiferromagnetic as well as novel quantum/topological (van der Waals) materials are amenable to these studies. Finally, I will comment on the collective quantum dynamics of multiple NV centers interacting via a shared (dissipative) medium, both from the point of view of extending their sensor capabilities and using them as a scalable quantum-computing platform.